

Solution (#55) Using Proposition 1.15 we have that

$$\sqrt{2} \operatorname{cis} \left(\frac{11\pi}{12} \right) = \sqrt{2} \operatorname{cis} \left(\frac{\pi}{4} \right) \operatorname{cis} \left(\frac{2\pi}{3} \right) = \sqrt{2} \left(\frac{1+i}{\sqrt{2}} \right) \left(\frac{-1+\sqrt{3}i}{2} \right) = \frac{1}{2} (-1-\sqrt{3}) + \frac{i}{2} (-1+\sqrt{3});$$

$$\sqrt{2} \operatorname{cis} \left(\frac{19\pi}{12} \right) = \sqrt{2} \operatorname{cis} \left(\frac{\pi}{4} \right) \operatorname{cis} \left(\frac{4\pi}{3} \right) = \sqrt{2} \left(\frac{1+i}{\sqrt{2}} \right) \left(\frac{-1-\sqrt{3}i}{2} \right) = \frac{1}{2} (-1+\sqrt{3}) + \frac{i}{2} (-1-\sqrt{3}).$$